FIG.1 PRIOR ART

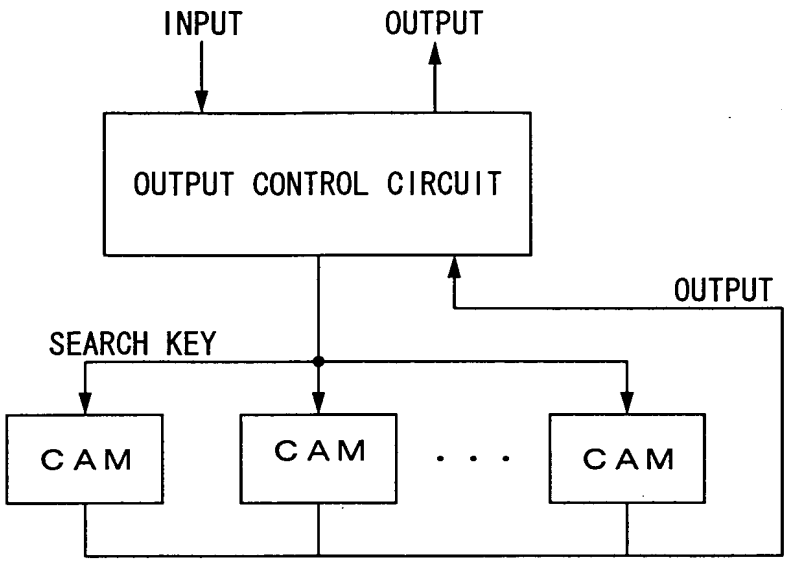
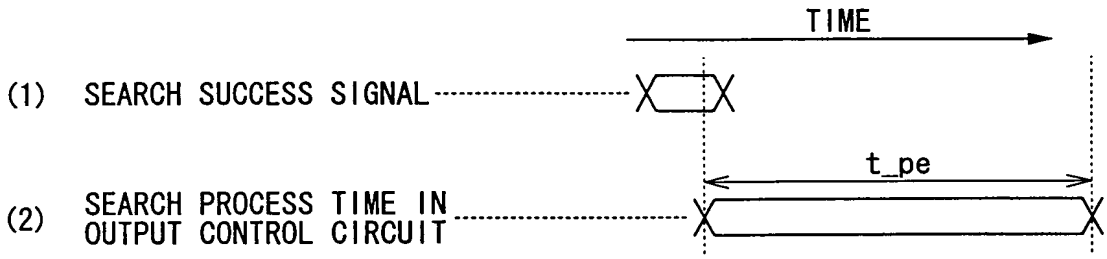


FIG.2 PRIOR ART



0054505 : 4-5-4-5-0-5-4-5-0

FIG.3

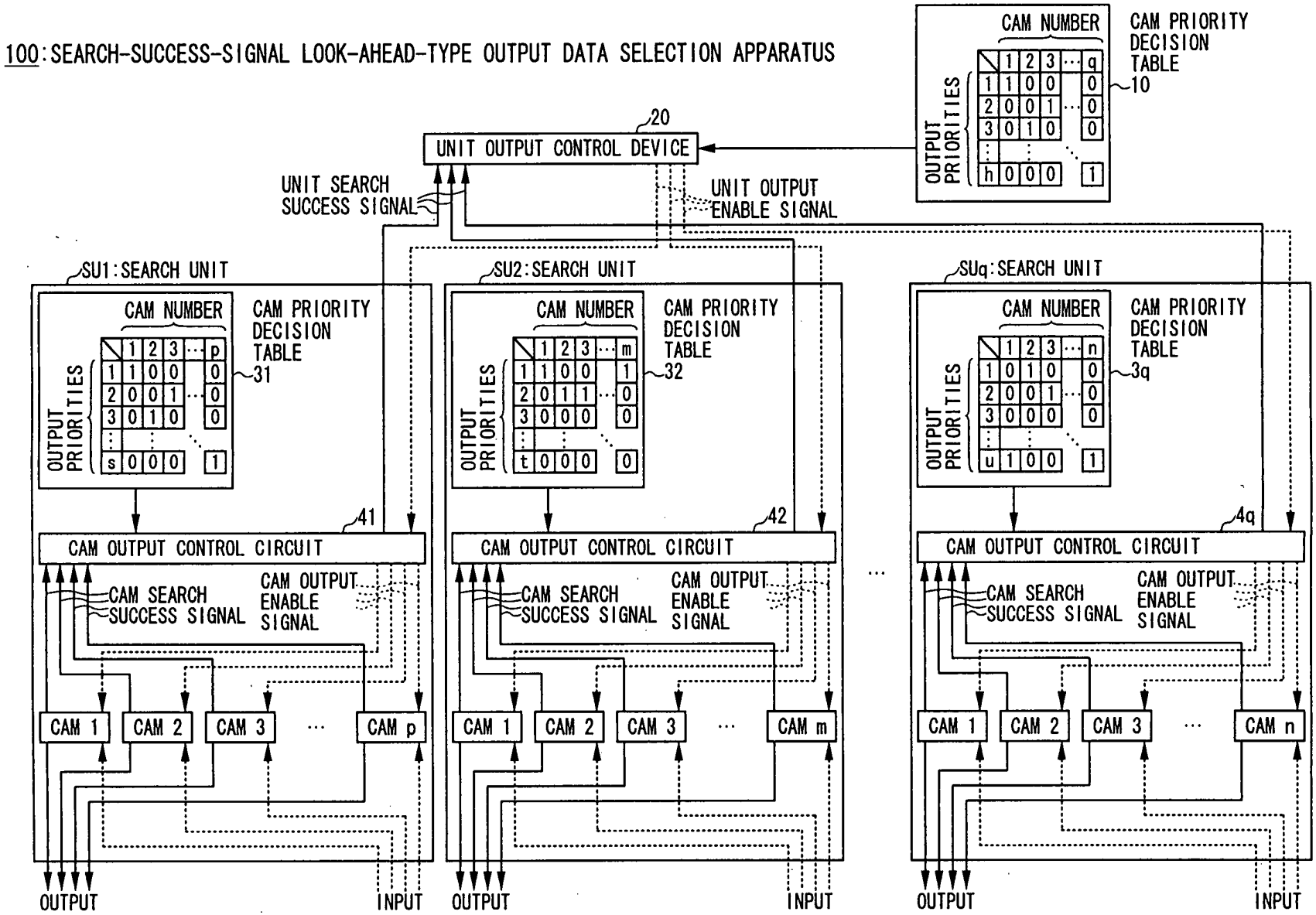

100:SEARCH-SUCCESS-SIGNAL LOOK-AHEAD-TYPE OUTPUT DATA SELECTION APPARATUS
CAM NUMBER
CAM PRIORITY DECISION TABLE
10
OUTPUT PRIORITIES
20
UNIT OUTPUT CONTROL DEVICE
UNIT SEARCH SUCCESS SIGNAL
UNIT OUTPUT ENABLE SIGNAL
SU1:SEARCH UNIT
SU2:SEARCH UNIT
SUq:SEARCH UNIT
31
32
3q
41
42
4q
CAM OUTPUT CONTROL CIRCUIT
CAM SEARCH SUCCESS SIGNAL
CAM OUTPUT ENABLE SIGNAL
CAM 1
CAM 2
CAM 3
CAM p
CAM m
CAM n
OUTPUT
INPUT

FIG.4

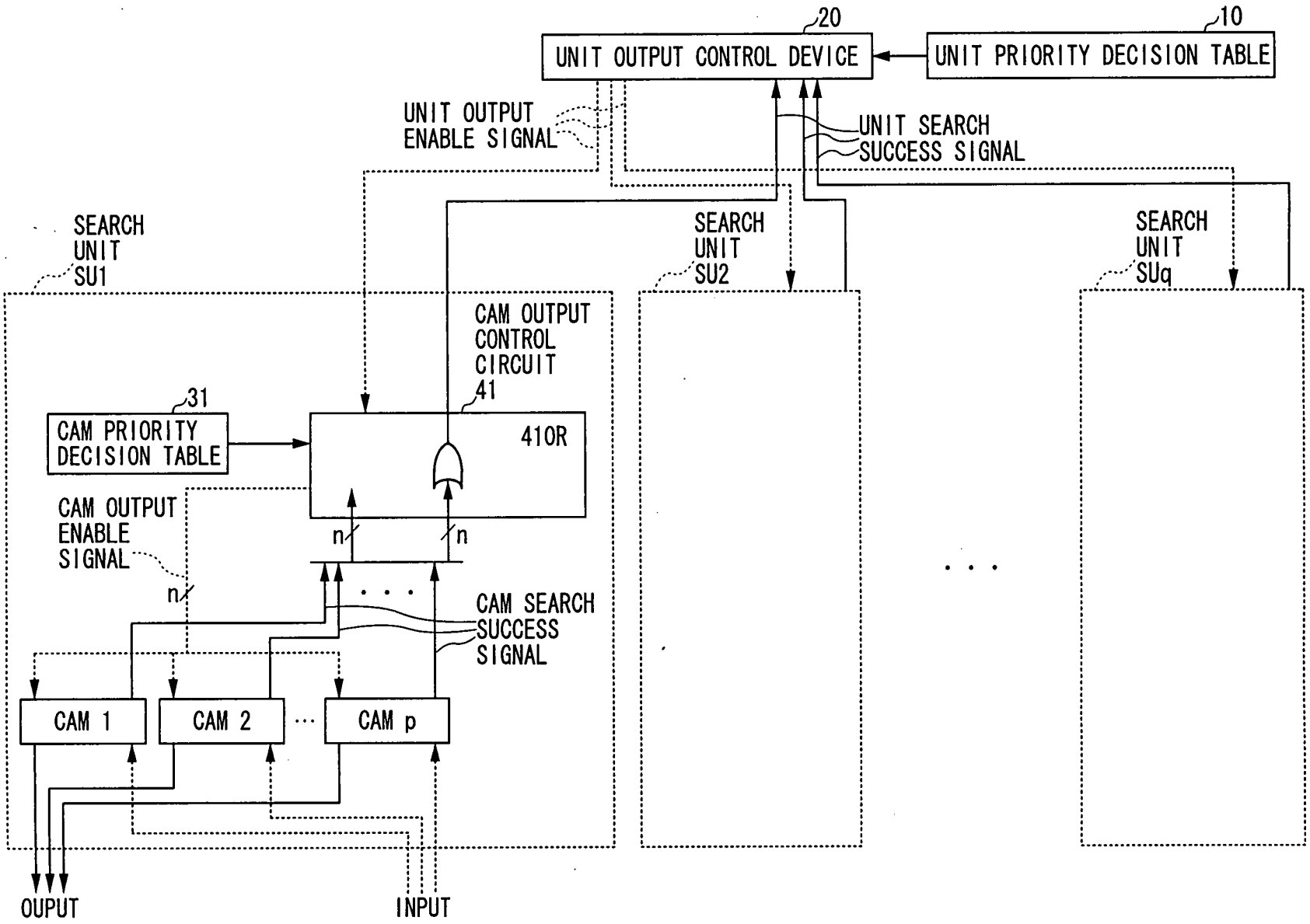

20
UNIT OUTPUT CONTROL DEVICE
10
UNIT PRIORITY DECISION TABLE
UNIT OUTPUT ENABLE SIGNAL
UNIT SEARCH SUCCESS SIGNAL
SEARCH UNIT SU1
SEARCH UNIT SU2
SEARCH UNIT SUq
CAM OUTPUT CONTROL CIRCUIT
41
31
CAM PRIORITY DECISION TABLE
410R
CAM OUTPUT ENABLE SIGNAL
n
n
n
CAM SEARCH SUCCESS SIGNAL
CAM 1
CAM 2
CAM p
OUPUT
INPUT

FIG.5

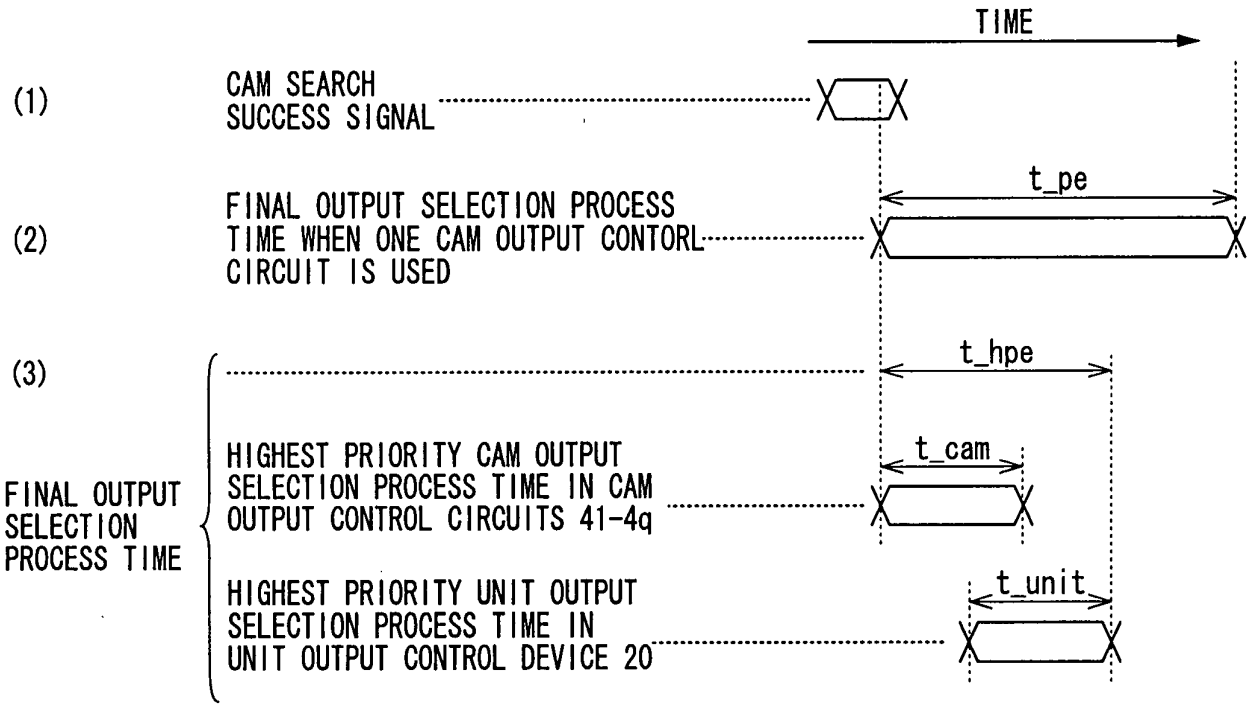

TIME
(1)
CAM SEARCH SUCCESS SIGNAL
t_pe
(2)
FINAL OUTPUT SELECTION PROCESS TIME WHEN ONE CAM OUTPUT CONTORL CIRCUIT IS USED
(3)
t_hpe
FINAL OUTPUT SELECTION PROCESS TIME
HIGHEST PRIORITY CAM OUTPUT SELECTION PROCESS TIME IN CAM OUTPUT CONTROL CIRCUITS 41-4q
t_cam
HIGHEST PRIORITY UNIT OUTPUT SELECTION PROCESS TIME IN UNIT OUTPUT CONTROL DEVICE 20
t_unit

FIG.6

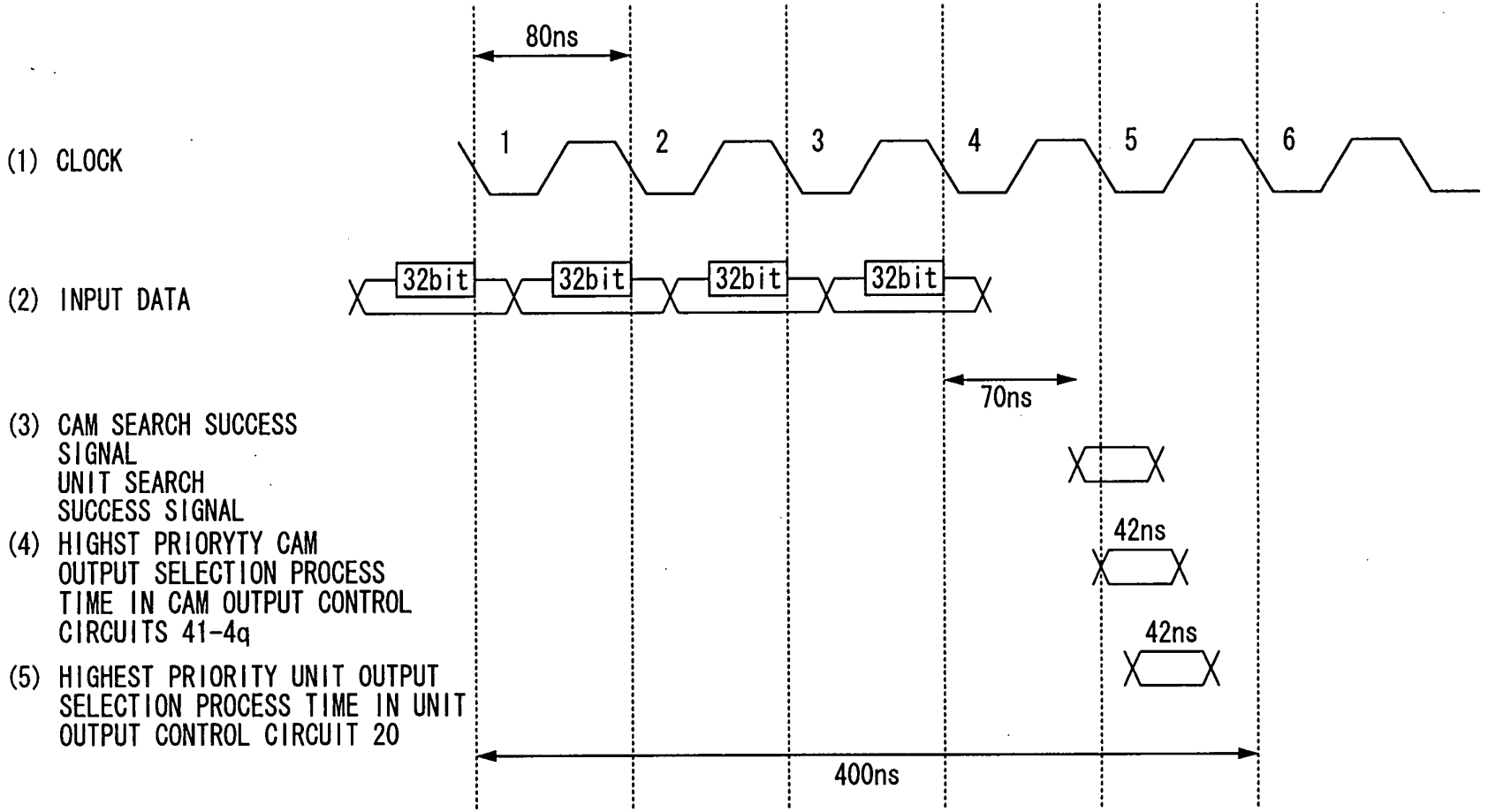

80ns
(1) CLOCK
1
2
3
4
5
6
(2) INPUT DATA
32bit
32bit
32bit
32bit
70ns
(3) CAM SEARCH SUCCESS SIGNAL
UNIT SEARCH SUCCESS SIGNAL
(4) HIGHST PRIORYTY CAM OUTPUT SELECTION PROCESS TIME IN CAM OUTPUT CONTROL CIRCUITS 41-4q
42ns
(5) HIGHEST PRIORITY UNIT OUTPUT SELECTION PROCESS TIME IN UNIT OUTPUT CONTROL CIRCUIT 20
42ns
400ns

FIG.7

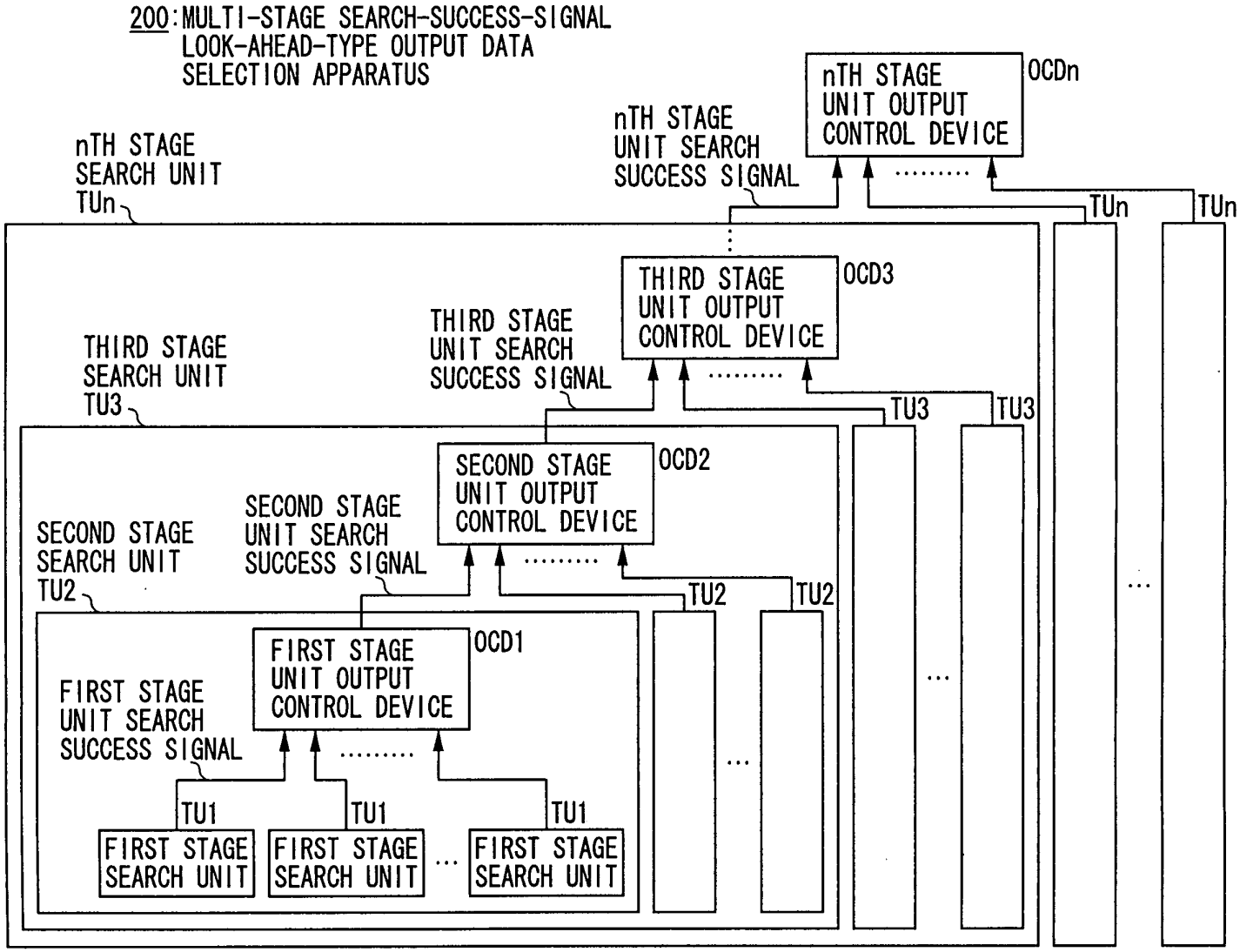

200:MULTI-STAGE SEARCH-SUCCESS-SIGNAL LOOK-AHEAD-TYPE OUTPUT DATA SELECTION APPARATUS
nTH STAGE SEARCH UNIT TUn
nTH STAGE UNIT SEARCH SUCCESS SIGNAL
nTH STAGE UNIT OUTPUT CONTROL DEVICE
OCDn
THIRD STAGE SEARCH UNIT TU3
THIRD STAGE UNIT SEARCH SUCCESS SIGNAL
THIRD STAGE UNIT OUTPUT CONTROL DEVICE
OCD3
SECOND STAGE SEARCH UNIT TU2
SECOND STAGE UNIT SEARCH SUCCESS SIGNAL
SECOND STAGE UNIT OUTPUT CONTROL DEVICE
OCD2
FIRST STAGE UNIT SEARCH SUCCESS SIGNAL
FIRST STAGE UNIT OUTPUT CONTROL DEVICE
OCD1
TUn
TU3
TU2
TU1
FIRST STAGE SEARCH UNIT

FIG.8

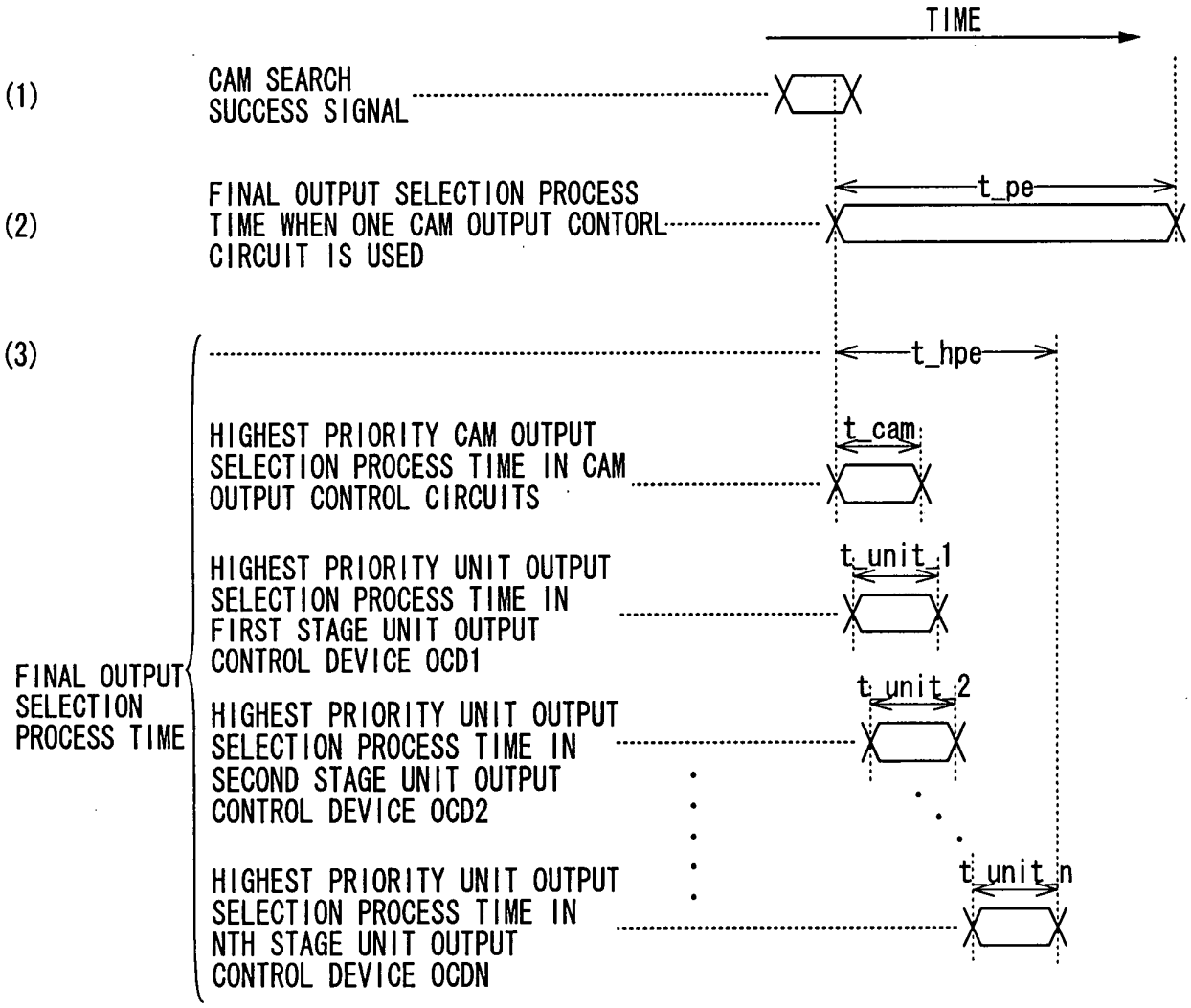

TIME
(1)
CAM SEARCH SUCCESS SIGNAL
(2)
FINAL OUTPUT SELECTION PROCESS TIME WHEN ONE CAM OUTPUT CONTORL CIRCUIT IS USED
t_pe
(3)
t_hpe
FINAL OUTPUT SELECTION PROCESS TIME
HIGHEST PRIORITY CAM OUTPUT SELECTION PROCESS TIME IN CAM OUTPUT CONTROL CIRCUITS
t_cam
HIGHEST PRIORITY UNIT OUTPUT SELECTION PROCESS TIME IN FIRST STAGE UNIT OUTPUT CONTROL DEVICE OCD1
t_unit_1
HIGHEST PRIORITY UNIT OUTPUT SELECTION PROCESS TIME IN SECOND STAGE UNIT OUTPUT CONTROL DEVICE OCD2
t_unit_2
HIGHEST PRIORITY UNIT OUTPUT SELECTION PROCESS TIME IN NTH STAGE UNIT OUTPUT CONTROL DEVICE OCDN
t_unit_n

FIG.9

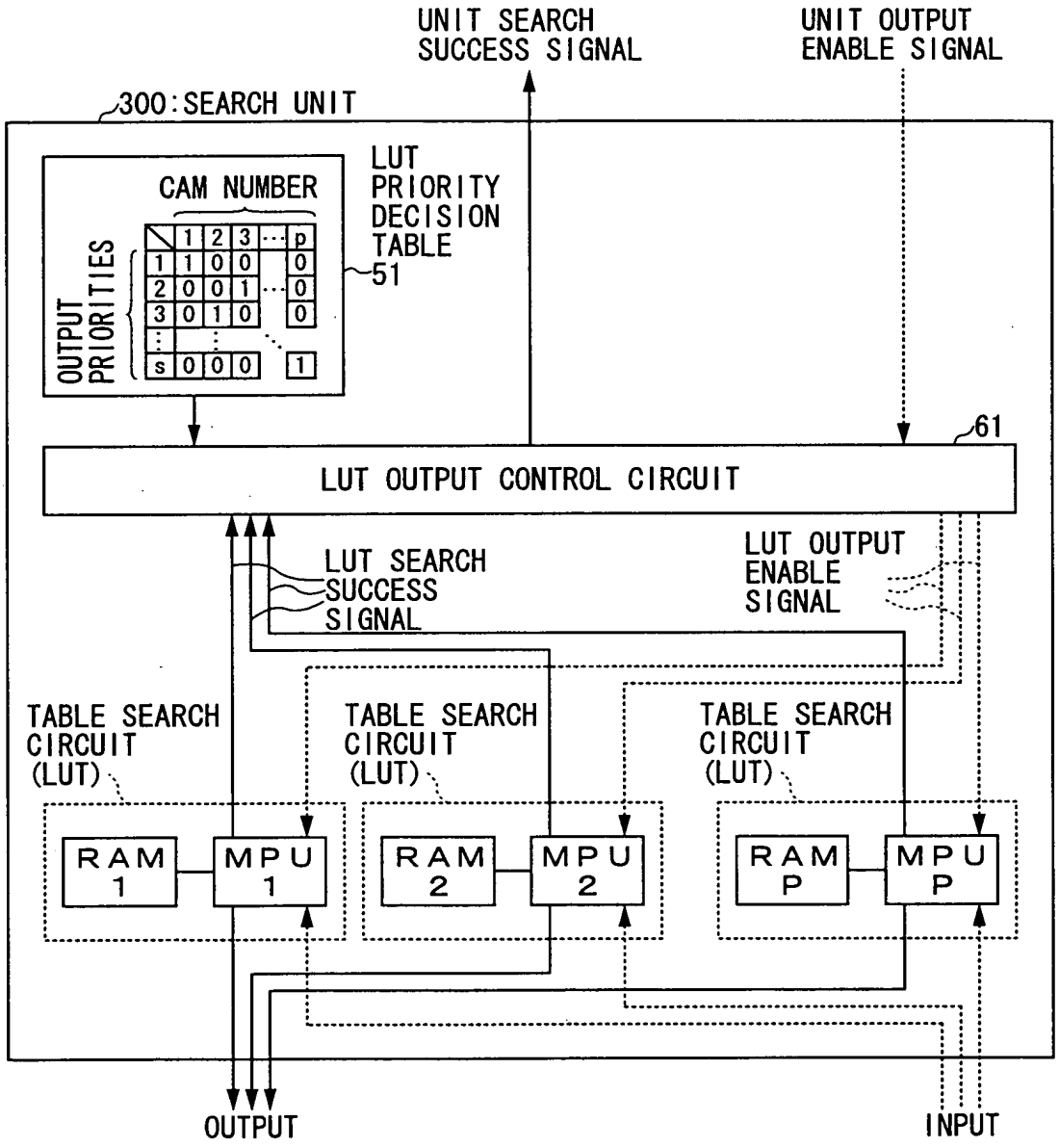

UNIT SEARCH SUCCESS SIGNAL
UNIT OUTPUT ENABLE SIGNAL
300:SEARCH UNIT
LUT PRIORITY DECISION TABLE
51
CAM NUMBER
OUTPUT PRIORITIES
61
LUT OUTPUT CONTROL CIRCUIT
LUT SEARCH SUCCESS SIGNAL
LUT OUTPUT ENABLE SIGNAL
TABLE SEARCH CIRCUIT (LUT)
TABLE SEARCH CIRCUIT (LUT)
TABLE SEARCH CIRCUIT (LUT)
RAM 1
MPU 1
RAM 2
MPU 2
RAM P
MPU P
OUTPUT
INPUT

FIG.10

400: SEARCH-SUCCESS-SIGNAL LOOK-AHEAD-TYPE DATA SELECTION APPARATUS OF PIPELINE DATA PROCESSING TYPE

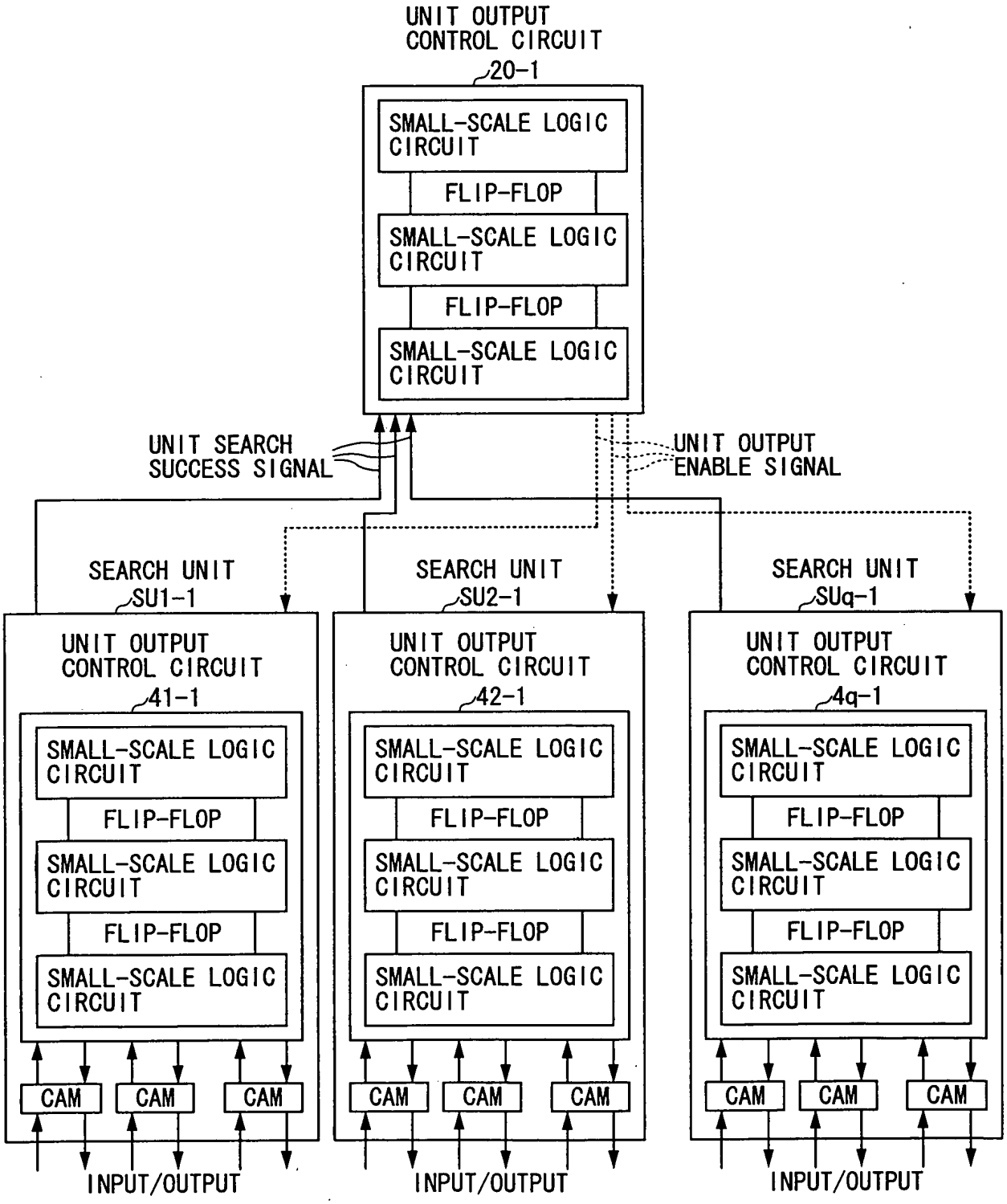


FIG.11

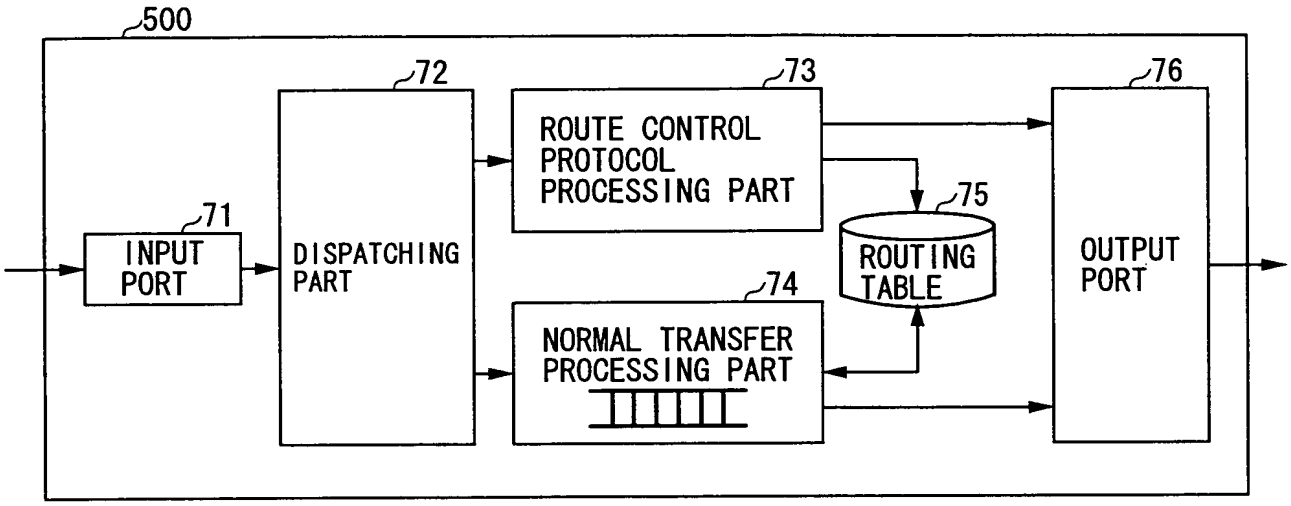

500
71
INPUT PORT
72
DISPATCHING PART
73
ROUTE CONTROL PROTOCOL PROCESSING PART
74
NORMAL TRANSFER PROCESSING PART
75
ROUTING TABLE
76
OUTPUT PORT

FIG.12

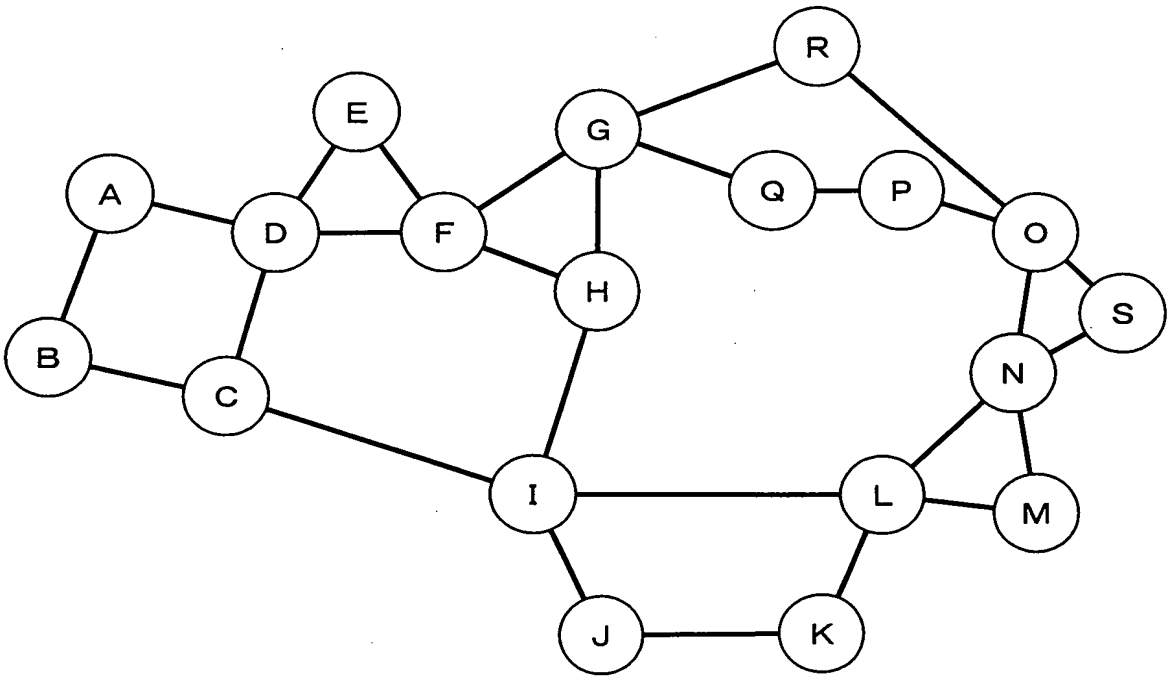
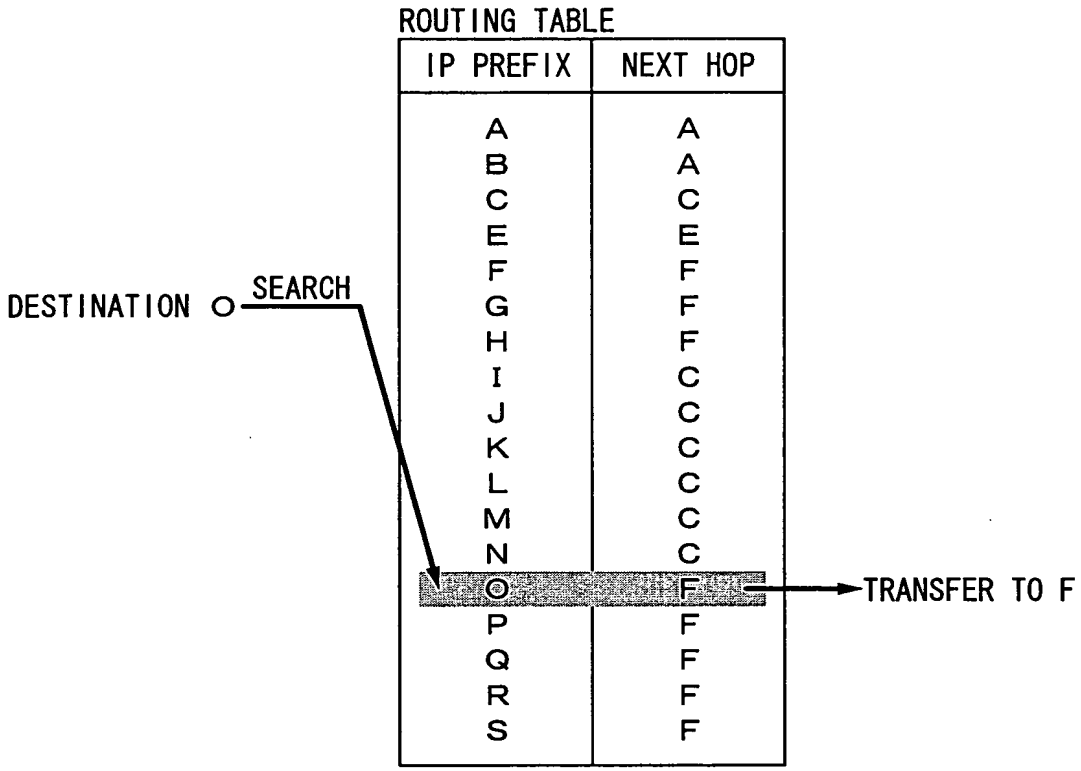


FIG.13


ROUTING TABLE
IP PREFIX
NEXT HOP
A A
B A
C C
E E
F F
G F
H F
I C
J C
K C
L C
M C
N C
O F
P F
Q F
R F
S F
DESTINATION O
SEARCH
TRANSFER TO F